Amendments to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in this application.

Listing of Claims:

1. (Currently Amended) An IFF ~~transponder~~ apparatus for ground applications, comprising:

[[-]] ~~Encoder~~ an encoder for forming an interrogating or response sequence of pulses, and conveying the same to a UWB transmitter;

[[A]] an UWB transmitter for getting said interrogating or response sequence of pulses, forming a corresponding interrogating or response signal of a sequence of UWB pulses, and transmitting the same via a UWB transmitting antenna;

[[A]] a plurality of UWB receiving antennas, disposed away one from the other, for receiving either an interrogating signal or a response signal sent by another ~~transponder~~ IFF apparatus;

[[A]] a decoder for getting from at least one of said UWB receiving antennas received signals, decoding the same, comparing the decoded signal with a bank of pre-stored signals, and determining whether a received signal is an interrogating or response signal; and

[[A]] a processing unit for, upon receipt of a ~~signal of~~ response signal to an ~~interrogation~~ interrogating signal sent by the present ~~transponder~~ IFF apparatus, calculating the location of the responding ~~transponder~~ IFF apparatus by:

a. ~~Determining~~ determining the range R by the time delays between the interrogating and response signals;

b. ~~Determining~~ determining the direction vector to the responding ~~transponder~~ IFF apparatus by evaluating the time differences between arrival of each response pulse to a plurality of receiving antennas; and

c. determining the identity of the responding ~~transponder~~ IFF apparatus by checking the received sequence of UWB pulses, assuming that the sequence of each ~~transponder~~ IFF apparatus is unique.

2. (Currently Amended) An ~~transponder~~ IFF apparatus according to claim 1, wherein the ~~determining of the~~ range R to the responding ~~transponder~~ IFF apparatus is determined by performing:

$$\frac{\left[(T_r - T_s) - T_{proc}\right]c}{2} = R$$

wherein T_r is the time of receipt of the first pulse of the response signal at the present ~~transponder~~ IFF apparatus, T_s is the time of transmitting the first pulse of the ~~interrogation~~ interrogating signal by the present ~~transponder~~ IFF apparatus, T_{proc} is the duration required for the interrogated ~~transponder~~ IFF apparatus to process the ~~interrogation~~ interrogating signal, until transmitting the response signal;
and the ~~determining of~~ the direction vector to the responding ~~transponder~~ IFF apparatus is determined ~~made~~ by [[by]] performing:

$$\cos\theta = \frac{c\Delta T}{d}$$

wherein ΔT indicates the time difference of receipt of a same response pulse at a first receiving antenna and at a second receiving antenna, c is the speed of light, d is the distance between the said two receiving antennas, and θ is the angle between the said direction vector and a line connecting said two receiving antennas.

3. (Currently Amended) An ~~transponder~~ IFF apparatus according to claim 1 comprising three receiving antennas that are disposed at tips of a triangle.

4. (Currently Amended) An ~~transponder~~ IFF apparatus according to claim 3 for use by an infantry soldier wherein the receiving antennas are disposed on the helmet of the soldier.

5. (Currently Amended) An ~~transponder~~ IFF apparatus according to claim 4 wherein the receiving antennas are printed on the helmet.

6. (Currently Amended) An ~~transponder~~ IFF apparatus according to claim 3 wherein the transmitting antenna ~~being~~ is located at the center of the triangle.

7. (Currently Amended) An ~~transponder~~ IFF apparatus according to claim 1 wherein the UWB transmitter and the transmitting antenna are formed by two cones, a charging circuitry for charging the cones, and a fast switch for discharging the cones in order to produce a UWB pulse.

8. (Currently Amended) An ~~transponder~~ IFF apparatus according to claim 1, for use on a vehicle.

9. (Currently Amended) An ~~transponder~~ IFF apparatus according to claim 8 comprising at least three receiving antennas and one transmitting antenna disposed at different locations on the vehicle.

10. (Currently Amended) An ~~transponder~~ IFF apparatus according to claim 9 wherein the receiving antennas on the vehicle are omni-directional antennas.

11. (Currently Amended) An ~~transponder~~ IFF apparatus according to claim 9 wherein the receiving antennas on the vehicle are directional antennas.

12. (Currently Amended) An ~~transponder~~ IFF apparatus according to claim 9 wherein some of the receiving antennas on the vehicle are omni-directional antennas and some of the antennas are directional antennas, all arranged to cover the area of interest.

13. (Currently Amended) An ~~transponder~~ IFF apparatus according to claim 1 having two modes of operations, an interrogating mode in which the ~~transponder~~ IFF apparatus interrogates the identity, range, and azimuth of another ~~transponder~~ IFF apparatus in the area of interest, and a responding mode in which the IFF apparatus responds to an interrogation issued by another ~~transponder~~ IFF apparatus.

14. (Currently Amended) An ~~transponder~~ IFF apparatus according to claim 1 wherein each receiver is adapted to receive pulses of responding signal that are above a predefined threshold level, the predefined threshold level being a level which is above the noise level.

15. (Currently Amended) A method for determining by an interrogating ~~transponder~~ IFF apparatus the azimuth to an interrogated ~~transponder~~ IFF apparatus, comprising the steps of:

a. ~~Providing~~ providing within the interrogating ~~transponder~~ IFF apparatus a transmitting antenna, and at least two receiving antennas, disposed away one from the other;

b. ~~Transmitting~~ transmitting by the interrogating ~~transponder~~ IFF apparatus a coded interrogation signal, comprising a plurality of UWB pulses;

~~b. Receiving~~ c. receiving at the interrogated ~~transponder~~ IFF apparatus the ~~interrogating~~ interrogation signal, producing a response UWB signal, and transmitting the same to the interrogated ~~transponder~~ IFF apparatus;

~~c. Receiving~~ d. receiving by at least two receiving antennas within the interrogating ~~transponder~~ IFF apparatus said response UWB signal, and calculating the direction to the interrogated ~~transponder~~ IFF apparatus by evaluating the time differences between arrivals of each response pulse to a plurality of receiving antennas.

16. (Currently Amended) A method according to claim 15, wherein the direction determination is made by:

$$\cos\theta = \frac{c\Delta T}{d}$$

wherein ΔT indicates the time difference of receipt of one response pulse at a first receiving antenna and at a second receiving antenna, c is the speed of light, d is the distance between the ~~said~~ two receiving antennas, and θ is the angle between the ~~said~~ direction vector and a line connecting said two receiving antennas, assuming $d << R$, wherein R is the distance between the interrogating ~~transponder~~ IFF apparatus and the interrogated ~~transponder~~ IFF apparatus.

17. (New) An IFF apparatus according to claim 1, wherein the IFF apparatus has two modes of operations, a first mode operating as an interrogating apparatus, and a second mode operating as an interrogated apparatus.

18. (New) An IFF apparatus according to claim 17, wherein the IFF apparatus operates as a transponder in the second mode.